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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/804,995

03/13/2001

Si Jun Huang

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11/12/2004

Scientific-Atlanta, Inc.
Intellectual Property Dept. MS 4.3.518
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EXAMINER

DUONG, FRANK

ART UNIT

PAPER NUMBER

2666

DATE MAILED: 11/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/804,995

K

Applicant(s)

HUANG ET AL.

Examiner

Frank Duong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on communications 03/13/2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 03/13/01.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

1. This Office Action is a response to communications dated 03/13/01. Claims 18-49 are pending in the application.

Information Disclosure Statement

2. The information disclosure statement filed 03/13/01 complies with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. It has been considered and placed in the application file.

Specification

3. The disclosure is objected to because of the following informalities:

Page 1, line 28, the embedded hyperlink listed thereat is impermissible and required deletion. The attempt to incorporate subject matter into the patent application by reference to a hyperlink and/or other forms of browser-executable code is considered to be an improper incorporation by reference. See MPEP 608.01(p), paragraph I, regarding incorporation by reference.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

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A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

4. Claims 19-34 and 36-49 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-30 of prior U.S. Patent No. USP 6,438,139. This is a double patenting rejection.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 18 and 35 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 17 of U.S. Patent No. 6,438,139. Although the conflicting claims are not identical, they are not patentably distinct from each other because they encompass the claimed invention of claims 1 and 17 of the '139 patent. The evidence can be seen in a claim comparison below:

Instant application:

Claim 18 calls for "*a multiplexer for multiplexing a plurality of variable-rate bit streams onto a medium the multiplexer comprising: a receiver for receiving the bit*

stream; a transmitter coupled to the receiver for transmitting the bit stream on the medium, each bit stream receiving a dynamically-variable portion of the bandwidth of the medium; and a bandwidth portion controller coupled between the transmitter and the receiver for dynamically determining the variable portion for each bit stream using an output rate that is obtained by applying a model of a receiver for the bit stream to information read from the bit stream".

Claim 35 calls for "*a method of multiplexing a plurality of variable-rate bit streams onto a medium, the method comprising the steps of receiving the bit streams; for each bit stream dynamically obtaining an output rate by applying a model of a receiver for the bit stream to information read from the bit stream; for each bit stream, using the output rate determined for the bit stream to dynamically determine a variable portion of the bandwidth of the medium; and for each bit stream outputting the bit stream to the medium using the bit stream's variable portion of the bandwidth*".

'139 patent:

Claim 1 teaches "*a multiplexer for multiplexing a plurality of variable-rate bit streams onto a medium, the multiplexer comprising: a receiver for receiving the bit streams; a transmitter coupled to the receiver for transmitting the bit streams on the medium, each bit stream receiving a dynamically-variable portion of the bandwidth of the medium; and a bandwidth portion controller coupled between the transmitter and the receiver for dynamically determining the variable portion for each bit stream using an output rate that is obtained by applying a model of a receiver for the bit stream to information read from the bit stream; wherein the bandwidth portion controller*

determines the output rate for each bit stream such that the receiver for the bit stream will neither overflow nor underflow"

Claim 17 teaches "a method of multiplexing a plurality of variable-rate bit streams onto a medium, the method comprising the steps of: receiving the bit streams; for each bit stream, dynamically obtaining an output rate by applying a model of a receiver for the bit stream to information read from the bit stream, **the output rate being determined such that the receiver will neither overflow nor underflow**; for each bit stream, using the output rate determined for the bit stream to dynamically determine a variable portion of the bandwidth of the medium; and for each bit stream, outputting the bit stream to the medium using the bit stream's variable portion of the bandwidth"

Even though claims 18 and 35 are broadened by omitting certain limitations as emphasized above, it has been held that the omission of an element and its function is an obvious expedient if the remaining elements perform the same function as before. *In re Karlson*, 136 USPQ 184(CCPA). Also note *Ex parte Rainu*, 168 USPQ 375 (Bd. App. 1969); omission of a reference element whose function is not needed would be an obvious variation. Moreover, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application that matured into a patent.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. Claims 18-21, 31, 34-38 and 47 are rejected under 35 U.S.C. 102(e) as being anticipated by Choi et al. (USP 6,195,388) (hereinafter "Choi").

Regarding **claim 18**, in according to FIGS. 2-6, col. 4, line 57 to col. 9, line 45, Choi shows a multiplexer (220) for multiplexing a plurality of variable-rate bit streams (outputs of 211-217) onto a medium (cable connecting 240-250) comprising:

a receiver (210) for receiving bit streams;

a transmitter (250) coupled to the receiver for transmitting the bit streams on the medium, each bit stream receiving a dynamically-variable portion of the bandwidth of the medium (note: at col. 5, lines 54-58, Choi discloses the function of quantization parameter determining unit 340 that reads on the claimed limitations set forth); and

a bandwidth portion controller (230) coupled between the transmitter and the receiver for dynamically determining the variable portion for each bit stream using an output rate that is obtained by applying a model of a receiver (430) for the bit stream to information read from the bit stream (note: at col. 5, line 36 to col. 7, line 61, Choi discloses the central controller 230 comprising total bit target allocator 320, a target bit re-allocator 330, and a quantization parameter determining unit. Choi further discloses

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the total target bit allocator comprises target bit estimation 411-415, a summer 420 and a buffer verifier 430. The recitation thereat reads on the claimed limitations set forth).

Regarding **claim 19**, at col. 6, line 66 to col. 7, line 5 and thereafter, Choi discloses the buffer verifier 430 receives buffer information from buffer 240 in synchronization with the external frame synchronization signal to prevent buffer 240 overflow. Moreover, by MPEG standard, the intended use of buffer verifier (VBV) is to prevent overflow and underflow at the receiving end. Therefore, Choi discloses the claimed limitation set forth.

Regarding **claims 20-21**, by the same rationale applied to claim 19 above, Choi's buffer 240 and buffer verifier 430 read on the claimed limitations set forth as claimed.

Regarding **claim 31**, at col. 7, lines 29-39, Choi discloses the operational principle of the buffer verifier 430 for preventing the overflow of buffer 240. The recitation thereat reads on the claimed limitations set forth as claimed.

Regarding **claim 34**, in according to FIG. 2, Choi shows a statistical multiplexing system comprising:

encoders (211-217);

a transmitter (240);

a multiplexer (220) coupled between encoders (211-217) and transmitter (240) in a manner set forth as claimed.

Regarding **claim 35** in according to FIGS. 2-4, Choi teaches a method of multiplexing a plurality of variable-rate bit streams (211-217) onto a medium (240) comprising the steps of:

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Receiving the bit streams (outputs of encoders 211-217);

(note: FIG. 4, col. 6, line 55 to col. 7, line 65, Choi discloses a target bit estimating unit (410) receives an external frame synchronizing signal and information (corresponding to claimed information) from encoders (21-217); and buffer verifier (430) (corresponding to claimed "a model of a receiver") receives the buffer information from buffer 240 in synchronization with the external frame synchronization signal for dynamically obtaining the channel bit rate. The recitation thereat reads on the below claimed limitations set forth as claimed);

for each bit stream, dynamically obtaining an output rate by applying a model of a receiver for the bit stream to information read from the bit stream;

for each bit stream, using the output rate determined for the bit stream to dynamically determine a variable portion of the bandwidth of the medium; and

for each bit stream, outputting the bit stream to the medium using the bit stream's variable portion of the bandwidth.

Regarding **claims 36-38**, in according to FIG. 6, col. 5, line 55 to col. 7, line 65, Choi discloses the buffer verifier 430 for receiving the buffer information from the buffer 240 in synchronization with the external frame synchronizing signal for rearranging the total target amount of bits to prevent overflow of buffer 240. Even though Choi does not implicitly disclose the process for preventing the underflow of the buffer 240 (corresponding to claimed "queue"); however, it is inherent, by the MPEG-2 standard, that buffer verifier 430 is used to prevent the underflow of buffer 240.

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Regarding **claim 47**, in according to equations 2-5 at col. 7, lines 43-58, B_i^e and B_{\max}^e are corresponding to the claimed limitations of "a minimum rate" and "a maximum rate", respectively, in a manner set forth as claimed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 18-19 and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rao (USP 5,506,844) in view of Auyeung et al (USP 5,677,969).

Regarding **claims 18-19**, in according to FIGS. 3 and 12, col. 5, line 44 to col. 7, line 40 and col. 33, line 28 to col. 35, line 58, Rao shows a multiplexer (300) for multiplexing a plurality of MPEG-2 bit streams (301) on to a transmission medium (330) comprising:

a receiver (1210) for receiving the bit streams; a transmitter (350) for providing the bit stream to the transmission medium.

Rao fails to explicitly disclose a rate controller for preventing overflow and underflow of a decoder buffer using a virtual buffer created in a rate controller to model fullness of a decoder buffer based on information read from the bit stream.

On the other hand, Auyeung et al., in according to FIG. 3 and the description at col. 2, line 44 to col. 3, line 31, discloses a rate controller for preventing overflow and

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underflow of a decoder buffer using a virtual buffer created in a rate controller to model fullness of a decoder buffer based on information read from the bit stream.

It would have been obvious to those skilled in the art to implement Auyeung et al.' rate controller into Rao's system to prevent overflow and underflow of a decoder buffer as well as maintain picture quality.

Regarding **claims 34-36**, the claims are rejected by the same rationales applied to claim 18.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank Duong whose telephone number is (571) 272-3164. The examiner can normally be reached on 7:00AM-3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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A handwritten signature in black ink, appearing to read 'Frank Duong', with a large, stylized flourish at the end.

Frank Duong
Examiner
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November 3, 2004